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Durkee et al.

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[54] **CALCULATOR KEYBOARD SWITCH WITH DISC SPRING CONTACT AND PRINTED CIRCUIT BOARD**

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[52] **U.S. Cl.**..... **200/5 A,** 200/159 B, 200/166 BH

[51] **Int. Cl.** **H01h 13/52**

[58] **Field of Search**..... 200/1 R, 5 R, 5 A, 52 R, 200/DIG. 1, 159 R, 159 B, 166 BH; 340/365 A

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[57] **ABSTRACT**

A keyboard switch assembly including a printed circuit board having four switch terminals on one side of the board, three of the terminals being arranged in a triangle and the fourth disposed within the triangle. Conductors on the one side of the board are respectively joined to the interior terminal and at least one of the three terminals. A conductive, generally triangular, snap-acting dome switch member is provided having arcuate apices, projections being respectively formed from the apices and respectively engaging the three terminals thereby spacing the periphery of the switch element from the one surface of the printed circuit board and the conductors thereon, at least the conductor connected to the interior terminal extending under the dome. The switch element has a fourth protection formed from the interior of the dome adjacent the center thereof which is in registry with the interior terminal and engages that terminal when the dome is deflected thereby completing an electrical circuit between the three terminals and the interior terminal. A layer of insulating material covers the conductors exclusive of the terminals. A sheet of insulating material covers the insulating layer and has an opening therein which receives and locates the switch member. Another sheet of insulating material covers the first sheet and the switch member. A plate covers the second insulating sheet and has an opening therein which receives a push button in registry with the switch element, depression of the push button actuating the dome of the switch member to a non-overcenter, deflected position in which the interior projection on the dome engages the interior switch terminal.

22 Claims, 14 Drawing Figures